

FIG. 1

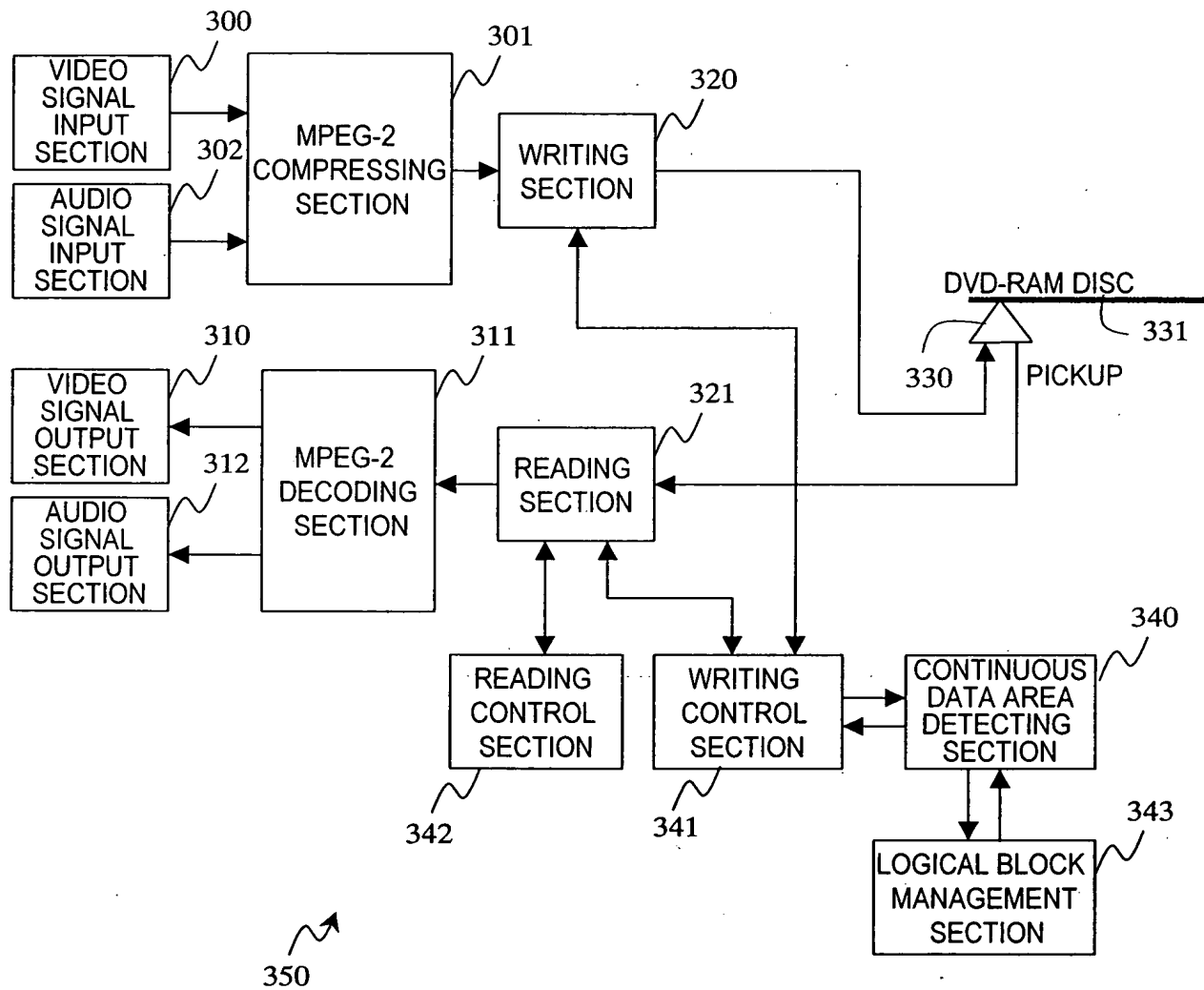


FIG. 2

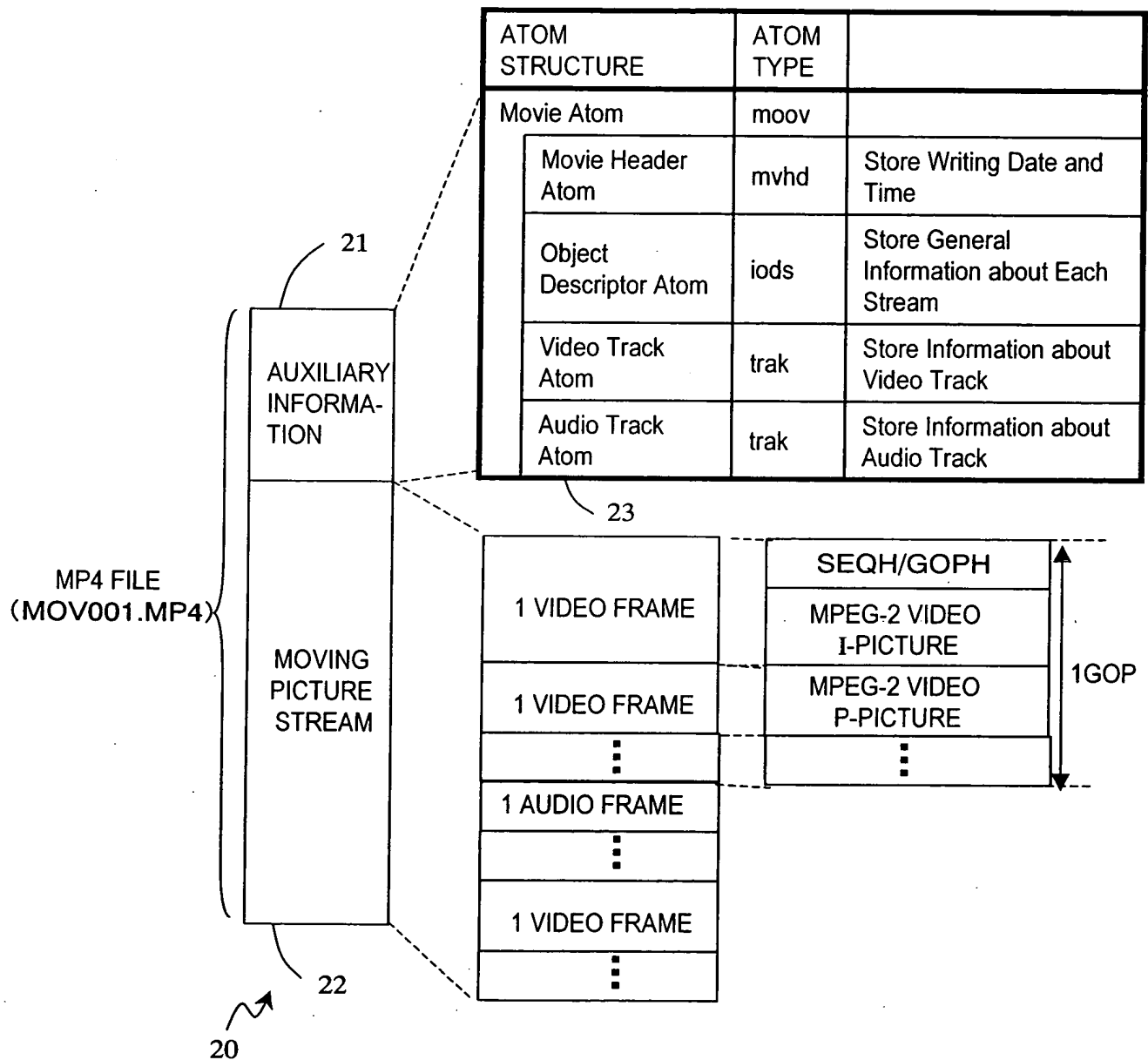


FIG. 3

| ATOM STRUCTURE | ATOM TYPE |
|------------------------|-----------|
| Movie Atom | moov |
| Movie Header Atom | mvhd |
| Object Descriptor Atom | iods |
| Video Track Atom | trak |
| Audio Track Atom | trak |

| ATOM STRUCTURE | ATOM TYPE | |
|---------------------------------|-----------|---|
| VIDEO TRACK ATOM | trak | (Declaration of Track Atom) |
| Track Header Atom | tkhd | Store Track ID |
| Edit List Atom | edts | (Declaration of Edit List Atom) |
| Edit List Atom | elst | Specify Playback Range and Timings |
| Media Atom | mdia | (Declaration of Media Atom) |
| Media Header Atom | mdhd | Specify Time Information Unit |
| Handler Reference Atom | hdlr | Store Information Showing Identity as Video Track |
| Media Information Atom | minf | (Declaration of Media Information Atom) |
| Video Media Header Atom | nmhd | Show Identity as Video Data |
| Data Information Atom | dinf | (Declaration of Data Information Atom) |
| Data Reference Atom | dref | Store Its File Name If Moving Picture Stream is Separate File |
| Sample Table Atom | stbl | (Declaration of Sample Table Atom) |
| Decoding Time to Sample Atom | stts | Store Decoding Time of Each Video Frame |
| Composition Time to Sample Atom | ctts | Store Presentation Time of Each Video Frame |
| Sample Description Atom | stsd | Store Information Showing Identity of Video Track as MPEG-2 Video and Store Audio Track Attribute |
| Sample Size Atom | stsz | Store Data Size of Each Video Frame |
| Sample to Chunk Atom | stsc | Store the Number of Video Frames to Make One Chunk |
| Chunk Offset Atom | stco | Store Top Address of Chunk |

FIG. 4

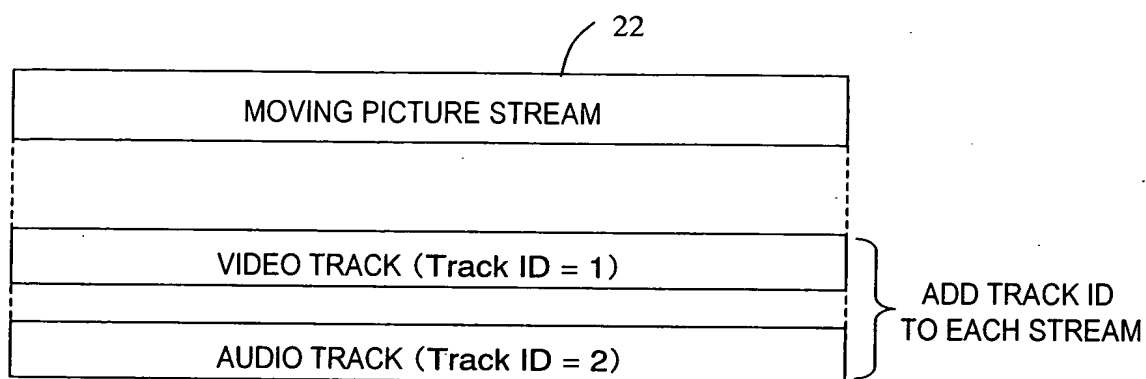


FIG. 5

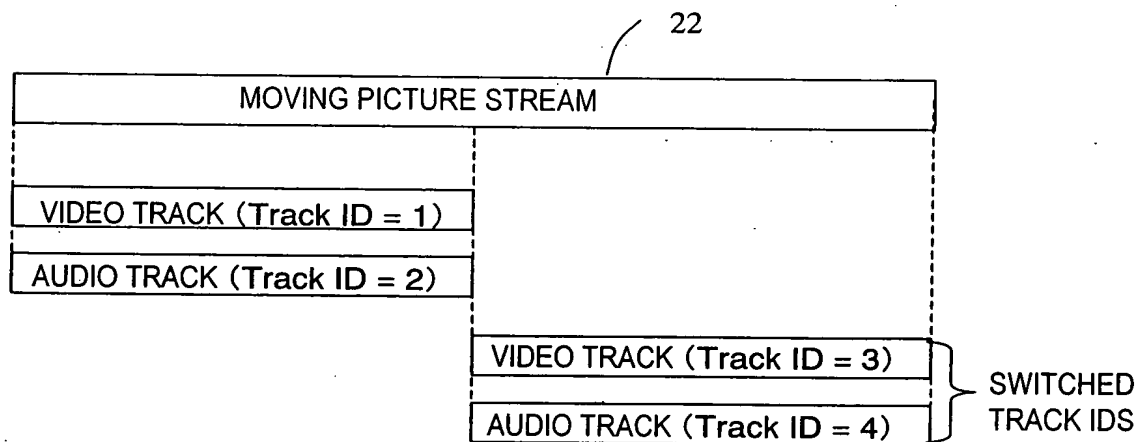


FIG. 6

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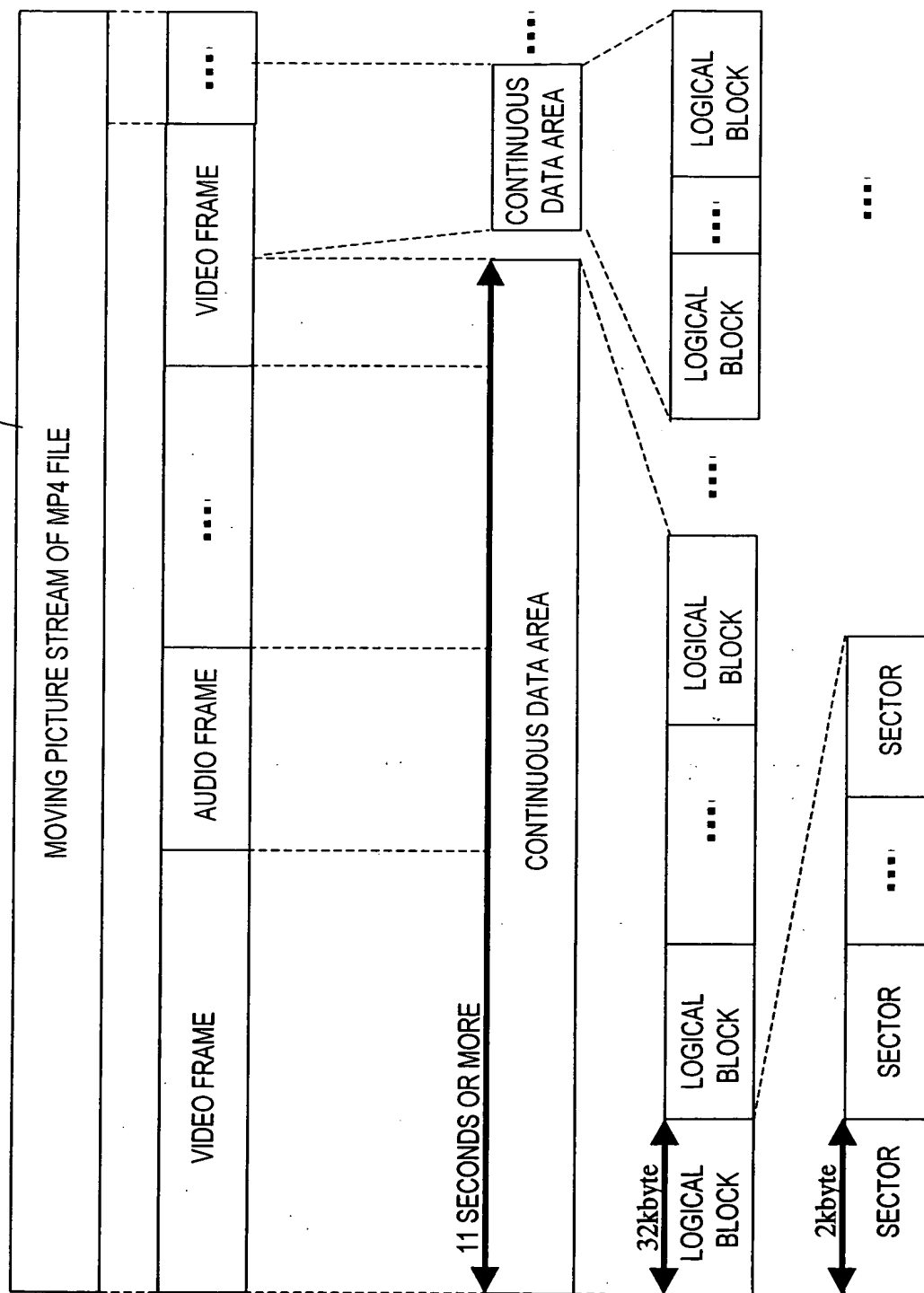


FIG. 7

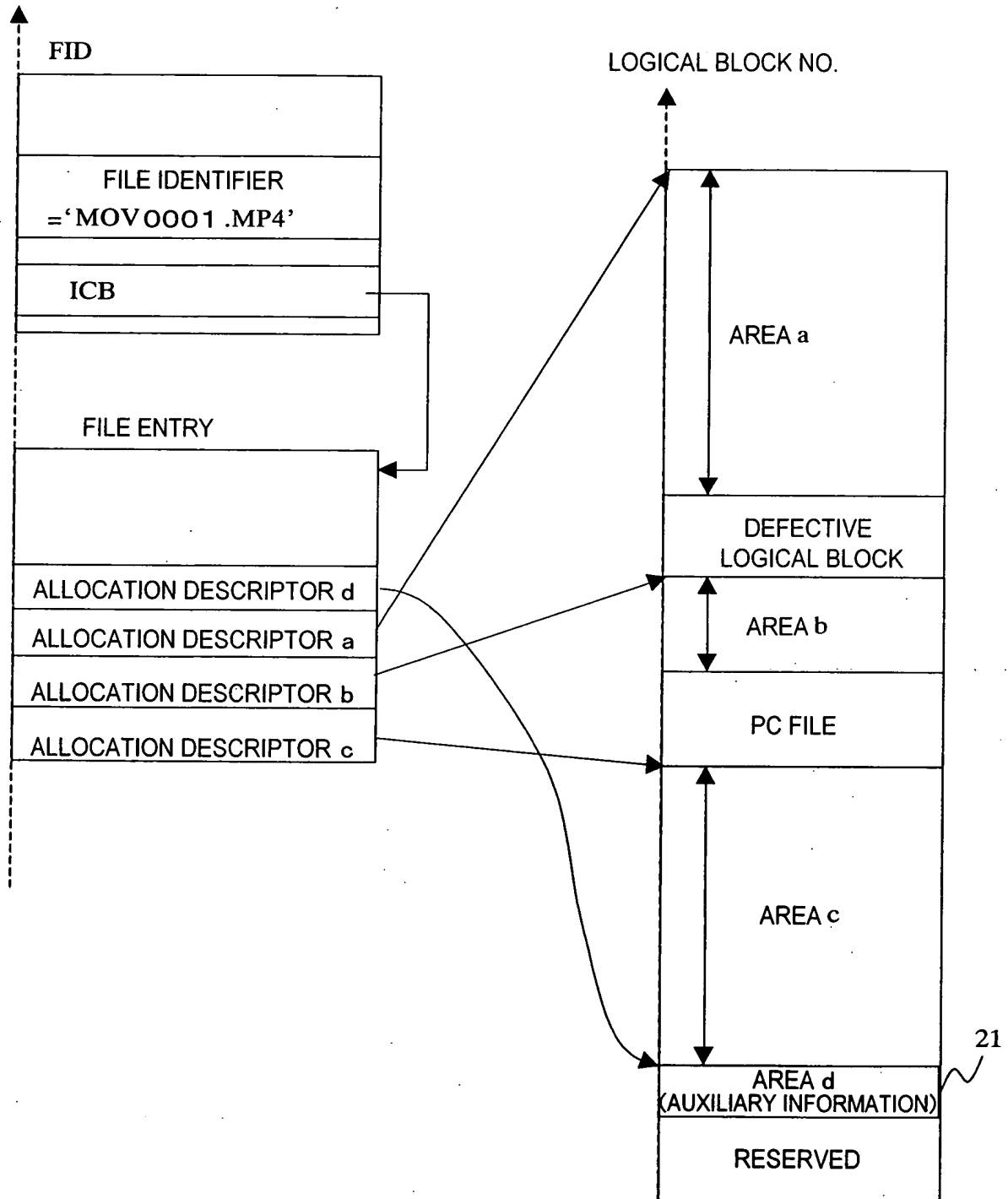


FIG. 8

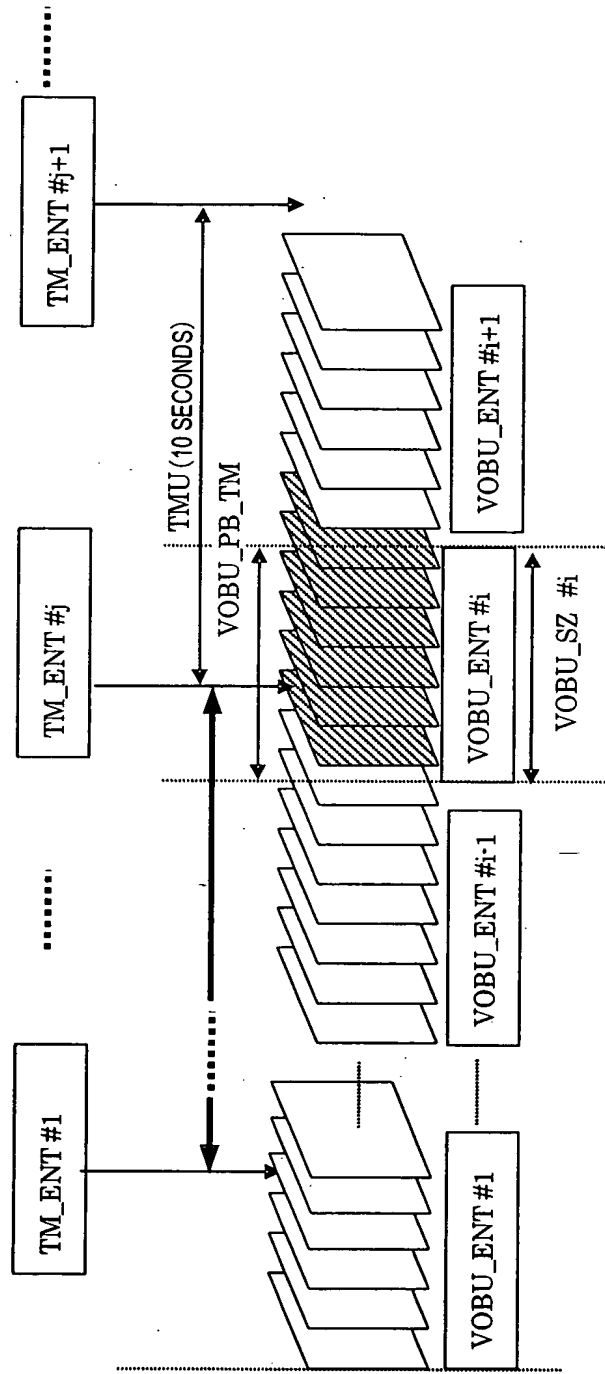


FIG. 9

| | FIELD NAME | SETTING |
|-----------------------------|-------------|------------------------------|
| Time Map General Infomation | TMAP_GI | |
| No. of Time Entries | TM_ENT_Ns | Total Number of Time Entries |
| No. of VOBUs Entries | VOBU_ENT_Ns | Total Number of VOBUs |
| Time Offset | TM_OFS | Number of Video Fields |
| Address Offset | ADR_OFS | Number of LBNs (F_RLBN) |
| Time Entry | TM_ENT | |
| VOBU Entry Number | VOBU_ENTN | VOBU Entry No |
| Time Difference | TM_DIFF | Number of Video Fields |
| Target VOBUs address | VOBU_ADR | Number of LBNs (F_RLBN) |
| VOBU Entry | VOBU_ENT | |
| 1st Reference Picture | 1STREF_SZ | Number of Packs |
| VOBU_PB_TM | VOBU_PB_TM | Number of Video Fields |
| VOBU_SZ | VOBU_SZ | Number of Packs |

FIG. 10

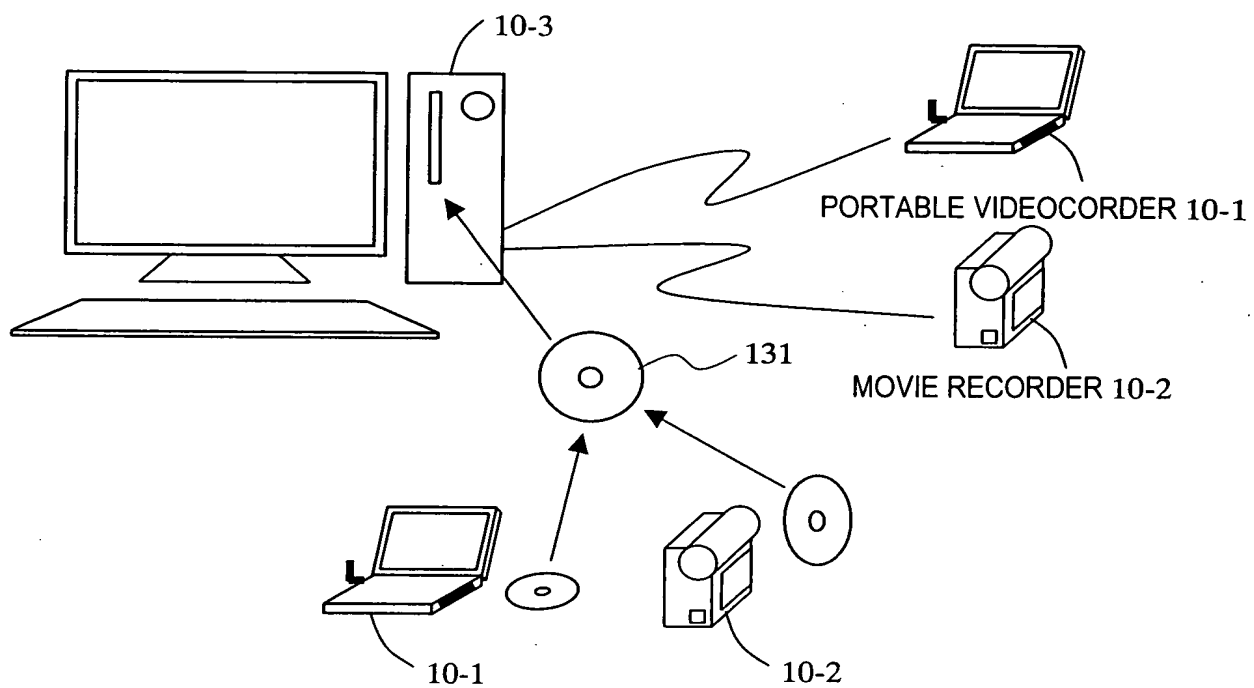


FIG. 11

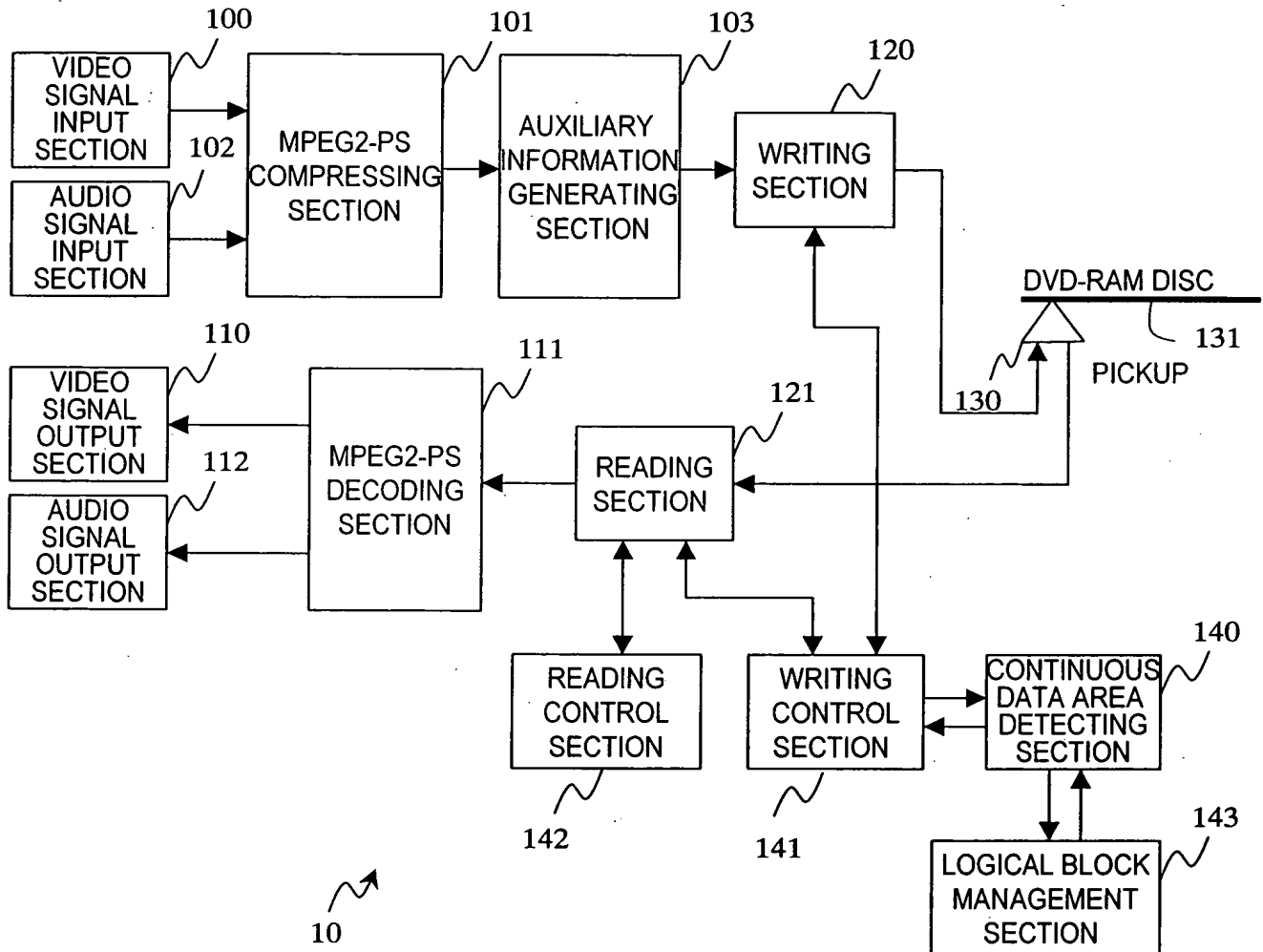


FIG. 12

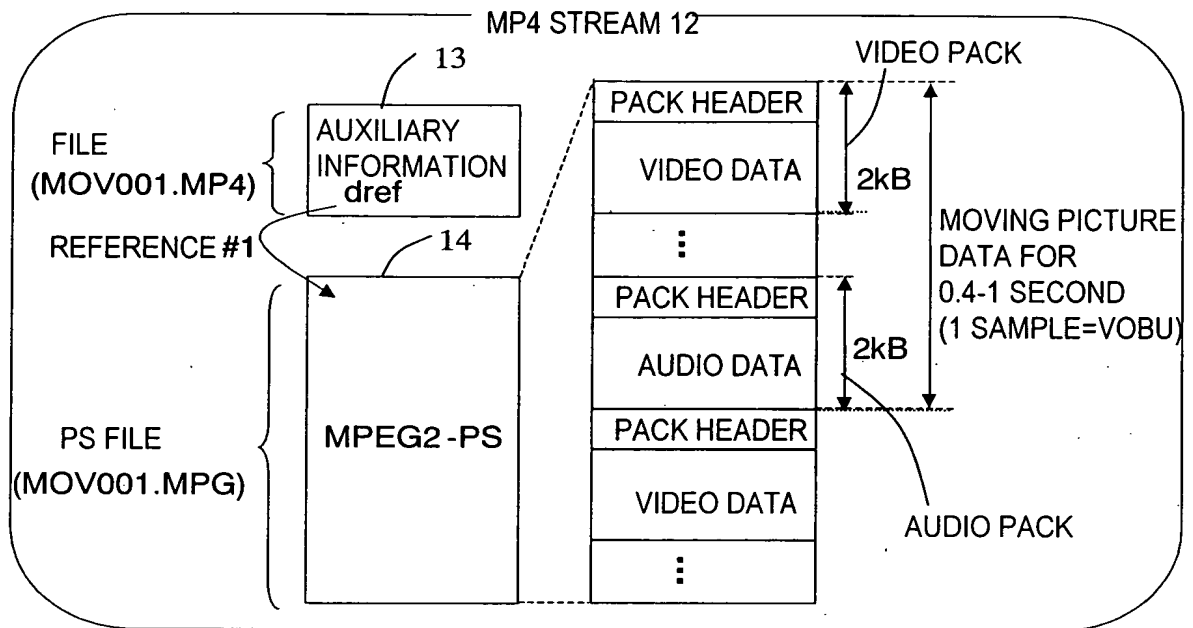


FIG. 13

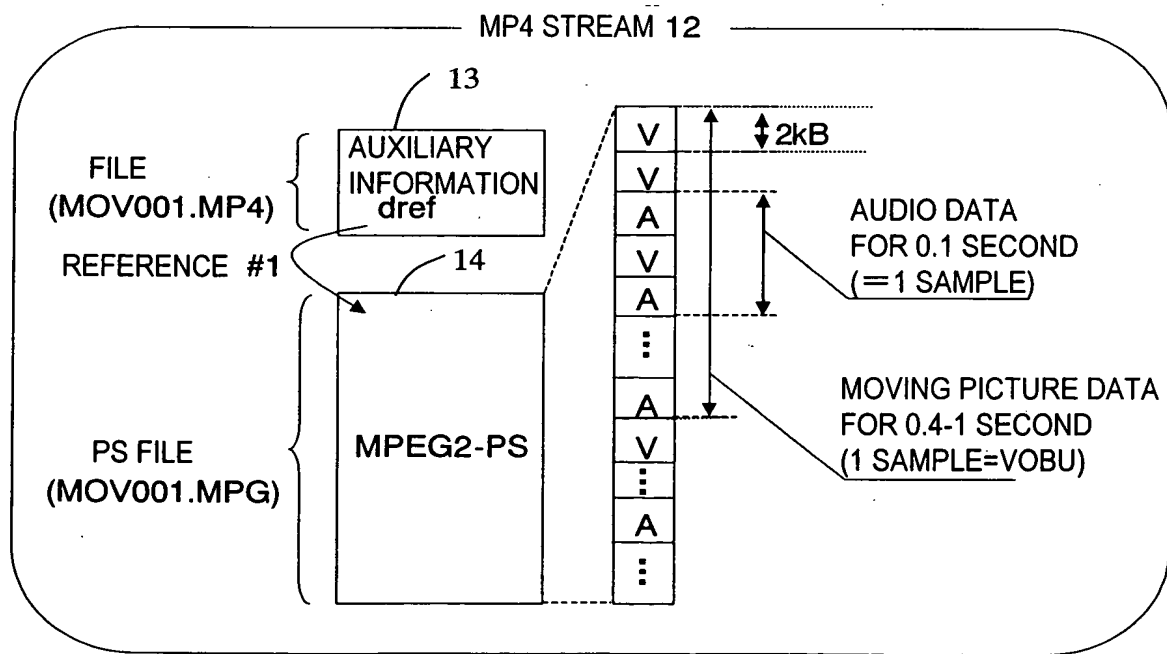


FIG. 14

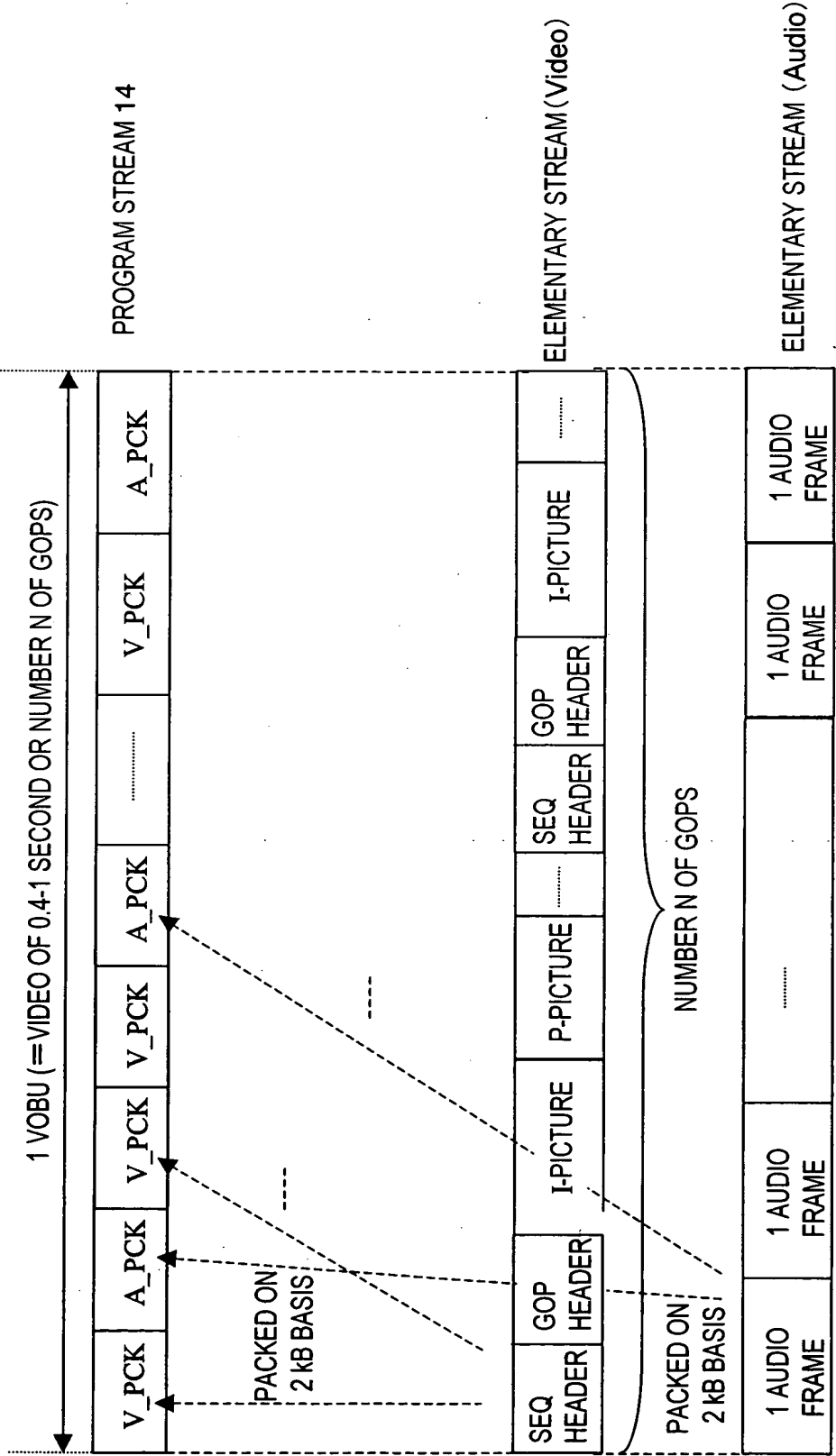


FIG. 15

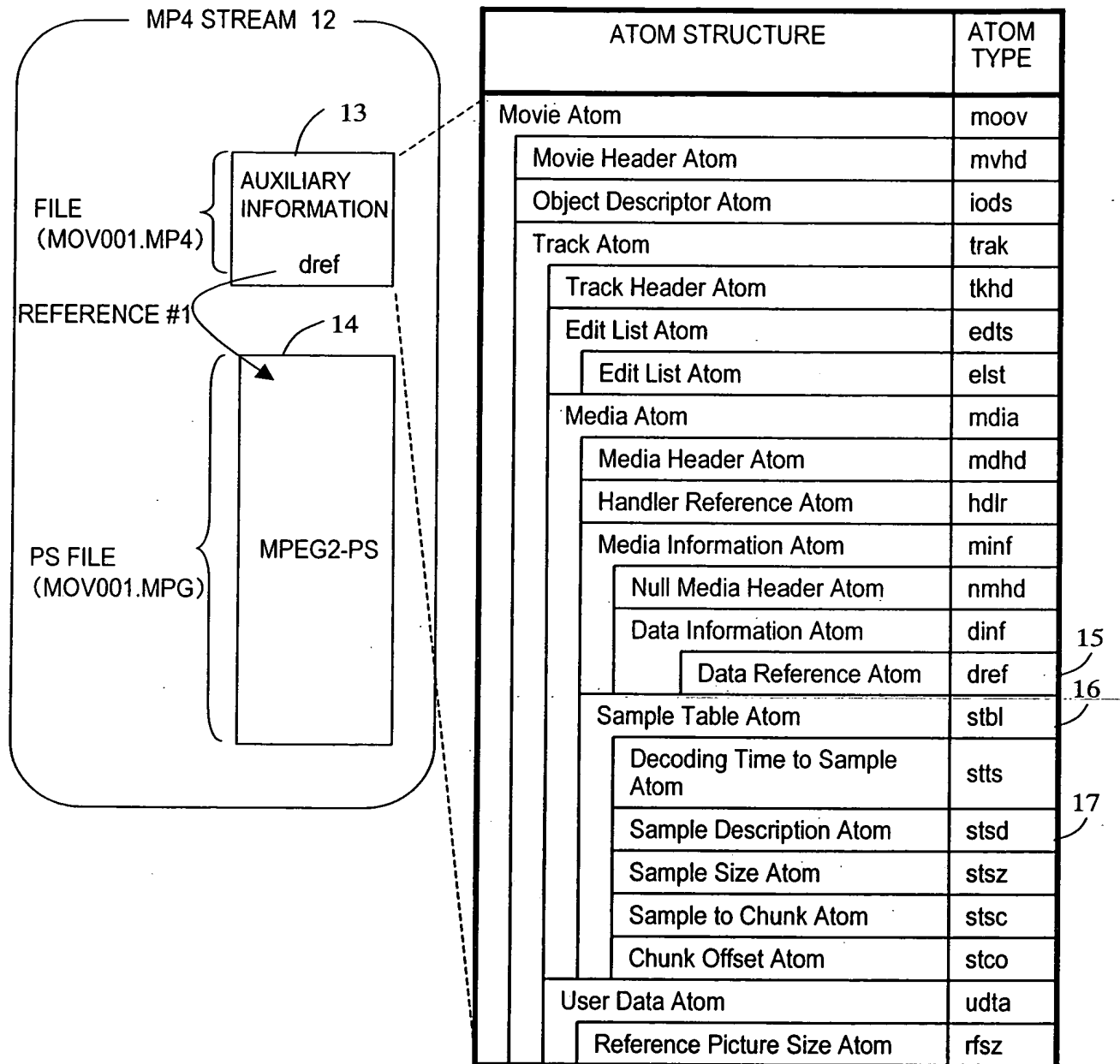


FIG. 16

| ATOM STRUCTURE | ATOM TYPE | |
|------------------------------|-----------|--|
| Movie Atom | moov | (Declaration of Movie Atom) |
| Movie Header Atom | mvhd | Store Writing Date and Time |
| Object Descriptor Atom | iods | Store General Information about Each Stream |
| Track Atom | trak | (Declaration of Track Atom) |
| Track Header Atom | tkhd | Store Track ID |
| Edit List Atom | edts | (Declaration of Edit List Atom) |
| Edit List Atom | elst | Specify Playback Range and Timings |
| Media Atom | mdia | (Declaration of Media Atom) |
| Media Header Atom | mdhd | Specify Time Information Unit |
| Handler Reference Atom | hdlr | Store Handler_type="m2ps" Showing Identity as MPEG2-PS |
| Media Information Atom | minf | (Declaration of Media Information Atom) |
| Null Media Header Atom | nmhd | Show Identity as Neither Video Frame nor Audio Frame |
| Data Information Atom | dinf | (Declaration of Data Information Atom) |
| Data Reference Atom | dref | Store Moving Picture Stream File in URL Form |
| Sample Table Atom | stbl | (Declaration of Sample Table Atom) |
| Decoding Time to Sample Atom | stts | Store Playback Duration of Each VOB |
| Sample Description Atom | stsd | Show Specifications of MPEG2-PS |
| Sample Size Atom | stsz | Store Size of Each VOB |
| Sample to Chunk Atom | stsc | Store the Number of VOBs to Make One Chunk When Overall MPEG File is Treated as One Chunk |
| Chunk Offset Atom | stco | Store Chunk Offset=0 as MPEG2-PS Starts from Beginning of MPEG File |
| User Data Atom | udta | (Declaration of User Data Atom) |
| Reference Picture Size Atom | rfsz | Store End Location of Top I-Frame of Each VOB as Offset Value from Top of VOB |

FIG. 17

Data Reference Atom 15

| field | value |
|------------------|--------|
| size | 33 |
| type | 'dref' |
| entry_count | 1 |
| DataEntryUrlAtom | |

DataEntryUrlAtom

| field | value |
|----------|-----------------|
| size | 21 |
| type | 'url' |
| location | './MOV0001.MPG' |

FIG. 18

| ATOM TYPE | FIELD NAME | REPEAT- ABLE ? | DATA SIZE [UNIT] | DESCRIPTION | SETTING |
|--|------------------------------|-------------------|------------------------|------------------------------------|----------------------|
| Sample Table Atom | stbl | | | | |
| Decoding Time to Sample Atom | entry-count | | 4[Byte] | Number of Entries | |
| | sample-count | ○ | 4[Byte] | Number of Samples | |
| | sample delta | ○ | 4[Byte] | Sample time scale | VOBU_ENT VOBU_PB_TM |
| Sample Description Atom | m2av (NEW) | | | | |
| Sample Size Atom | sample-size | | 4[Byte] | Default Sample Data Size | |
| | sample count | | 4[Byte] | Number of Samples | VOBU_ENT VOBU_ENT_Ns |
| | entry-size | | 4[Byte] | Sample Data Size | VOBU_ENT VOBU_SZ |
| Sample to Chunk Atom | entry-count | | 4[Byte] | Number of Entries | 1 Entry |
| | first-chunk | ○ | 4[Byte] | Chunk Index Number | |
| | samples-per-chunk | ○ | 4[Byte] | Number of Samples | VOBU_ENT VOBU_ENT_Ns |
| | sample-description- index | ○ | 4[Byte] | Sample description Index Number | |
| Chunk Offset Atom | entry-count | | 4[Byte] | Number of Entries | 1 Entry |
| | chunk-offset | | 4[Byte] | Chunk Offset | TMAP_GI ADR_OFS |
| In User Reference Picture Size Atom | entry-count | | 4[Byte] | Number of Entries | |
| | sync-sample-size | ○ | 4[Byte] | Sync Sample Data Size | VOBU_ENT 1STREF_SZ |

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FIG.19

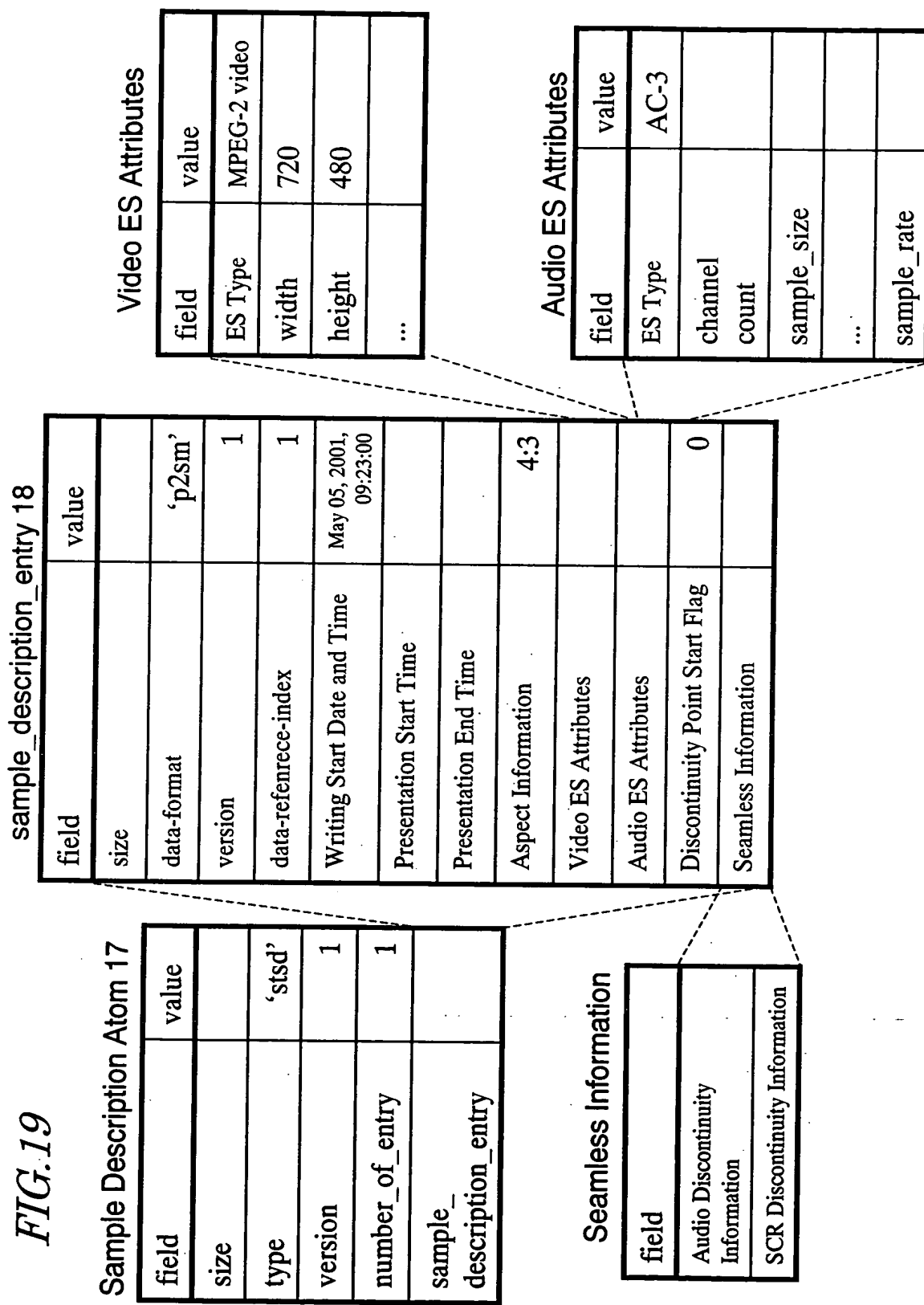


FIG.20

sample_description_entry 18

| field | value | Complement |
|--------------------------------|---------------------------|---|
| size | | Store Data Size of sample_description_entry |
| data-format | 'p2sm' | Information Showing Identity as MPEG2-PS Including MPEG-2 Video |
| version | 1 | Version Number of Specifications |
| data-refernce-index | 1 | Store ID Referenced by chunk offset atom |
| Writing Start Date and Time | May 05, 2001, 09:23:00 | Store Writing Start Date and Time |
| Presentation Start Time | | Store Timing Information about First Video Frame |
| Presentation End Time | | Store Timing Information about Last Video Frame |
| Aspect Information | 4:3 | Store Aspect Information |
| Video ES Attributes | | Store Information about Video Stream |
| Audio ES Attributes | | Store Information about Audio Stream |
| Discontinuity Point Start Flag | 0 | Indicate That Previous and Current Moving Picture Streams are Completely Continuous Program Stream |
| Seamless Information | | Store Information about Seamless Playback If Previous and Current Moving Picture Streams are Discontinuous |

FIG. 21

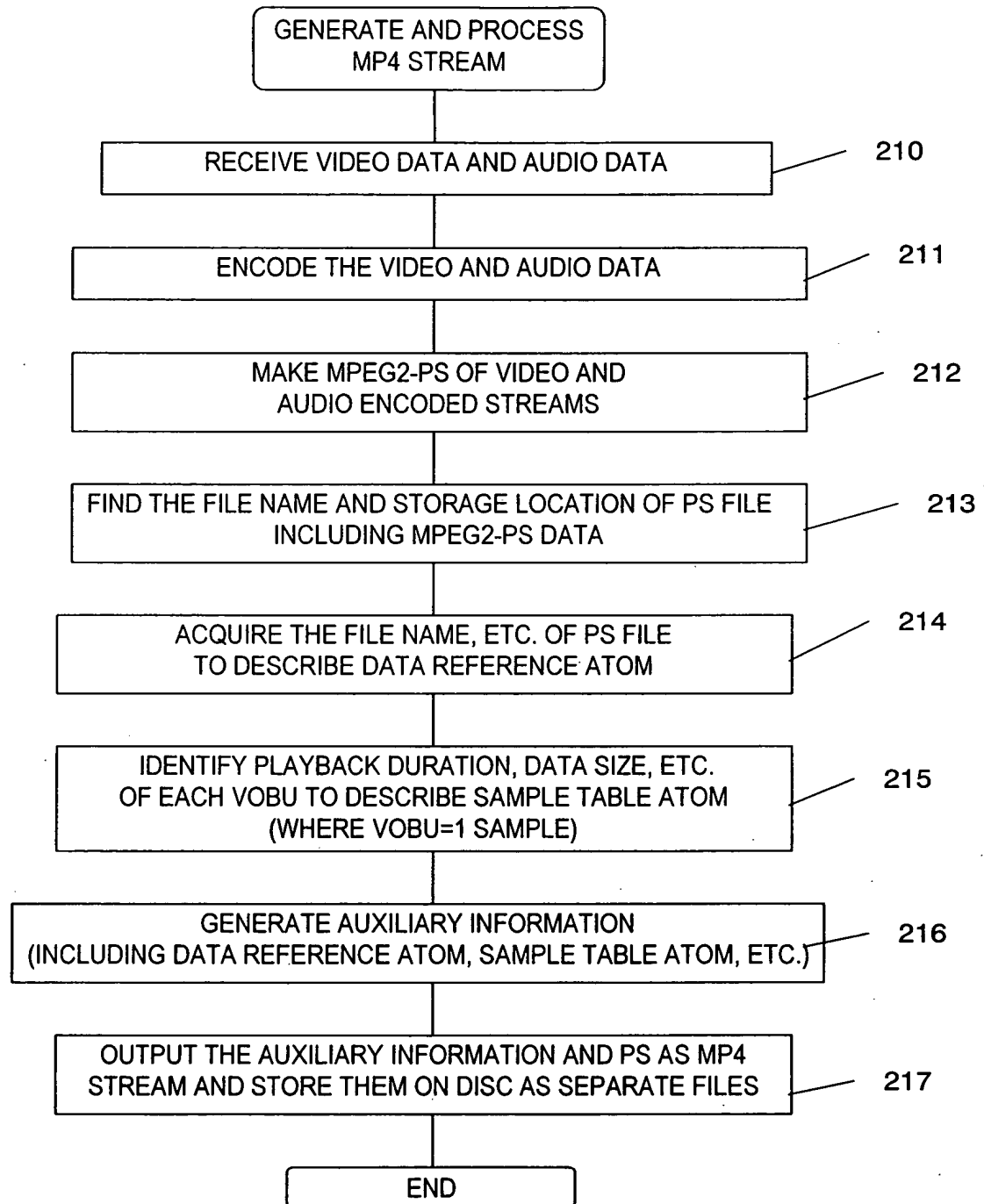


FIG. 22

| | | MPEG2 Video (ES) | | MPEG2-PS | |
|------------------------------------|-----------------------------------|------------------|---------------------------------|---------------------------------------|---------------------------------|
| | | M/O | CONVENTIONAL EXAMPLE | THE PRESENT INVENTION (1) | THE PRESENT INVENTION (2) |
| STRUCTURAL CONCEPT | sample | M | video frame | VOBU | Video Frame with Pack Header |
| | chunk | M | GOP | Overall Series of VOBUs (or VOB) | VOBU |
| | sync-sample | O | GOP with SEQ | — | — |
| ATOMS TO MAKE UP SAMPLE TABLE ATOM | Decoding Time to Sample Atom | M | video frame Period | VOBU Playback Duration | video frame Period (Fixed) |
| | Sample Size Atom | M | video frame size | VOBU Size | — (Not Used) |
| | Sample Description Atom | M | Stream Information | Stream Information | Stream Information |
| | Sample to Chunk Atom | M | Playback Duration of Each Chunk | Total Number of VOBUs (for One Entry) | Playback Duration of Each VOBUs |
| | Chunk Offset Atom | M | Top Address of Each Chunk | Top Address of VOBUs (for One Entry) | — (Not Used) |
| IN USER DATA ATOM | VOBU Size Atom (NEW) | — | — | — | VOBU Size |
| | Reference Picture Size Atom (NEW) | — | — | I-frame size | I-frame size |

FIG. 23

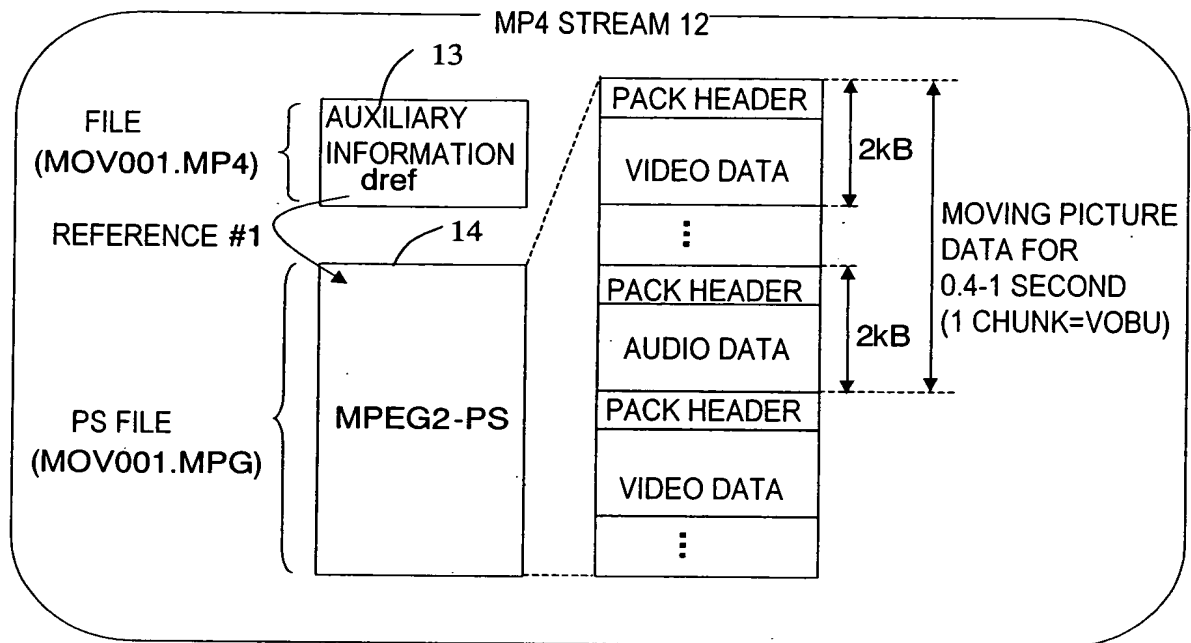


FIG. 24

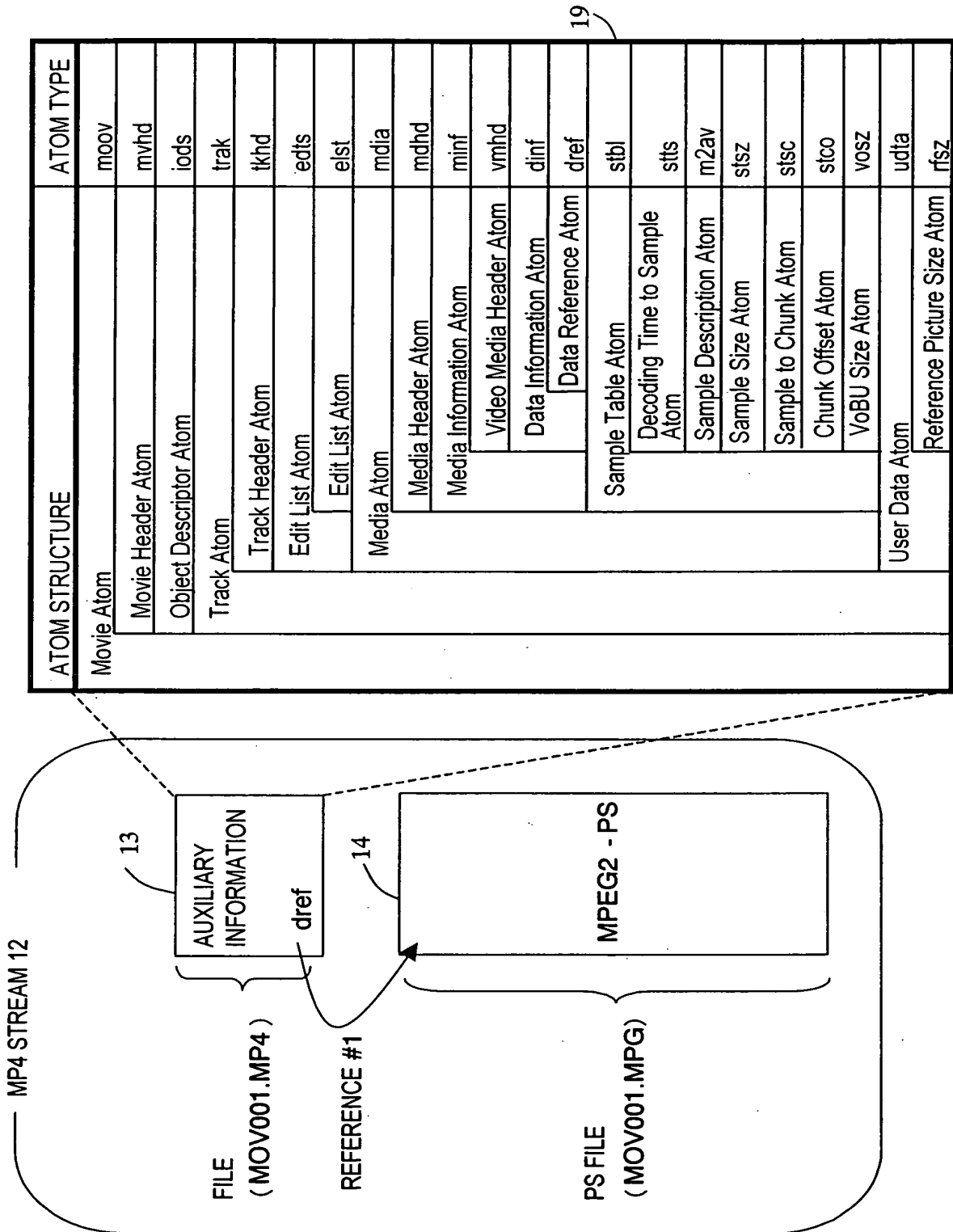


FIG. 25

| ATOM TYPE | FIELD NAME | REPEAT ABLE ? | DATA SIZE [UNIT] | DESCRIPTION | SETTING |
|------------------------------|--------------------------|-----------------------|---------------------|---------------------------------------|------------------------------|
| Sample Table Atom | stbl | | | | |
| Decoding Time to Sample Atom | entry-count | | 4[Byte] | Number of Entries | 1 Entry |
| | sample-count | <input type="radio"/> | 4[Byte] | Number of Samples | Total Number of Video Frames |
| | sample delta | <input type="radio"/> | 4[Byte] | Sample time scale | 100/3001 sec |
| Sample Description Atom | m2av (NEW) | | | | |
| Sample Size Atom | sample-size | | 4[Byte] | Default Sample Data Size | Not Used |
| | sample count | | 4[Byte] | Number of Samples | |
| | entry-size | <input type="radio"/> | 4[Byte] | Sample Data Size | |
| Sample to Chunk Atom | entry-count | | 4[Byte] | Number of Entries | TMAP_GI |
| | first-chunk | <input type="radio"/> | 4[Byte] | Chunk Index Number | VOBU_ENT_Ns |
| | samples-per-chunk | <input type="radio"/> | 4[Byte] | Number of Samples | VOBU_ENT |
| | sample-description-index | <input type="radio"/> | 4[Byte] | Sample Description Index Number | VOBU_PB_TM |
| Chunk Offset Atom | entry-count | | 4[Byte] | Number of Entries | Not Used |
| | chunk-offset | | 4[Byte] | Chunk Offset | |
| VOBU Size Atom | vosz (NEW) | <input type="radio"/> | 4[Byte] | VOBU Data Size | VOBU_ENT |
| Reference Picture Size Atom | rfisz (NEW) | <input type="radio"/> | 4[Byte] | End Address of First I-Picture in VOB | 1STREF_SZ |

FIG. 26

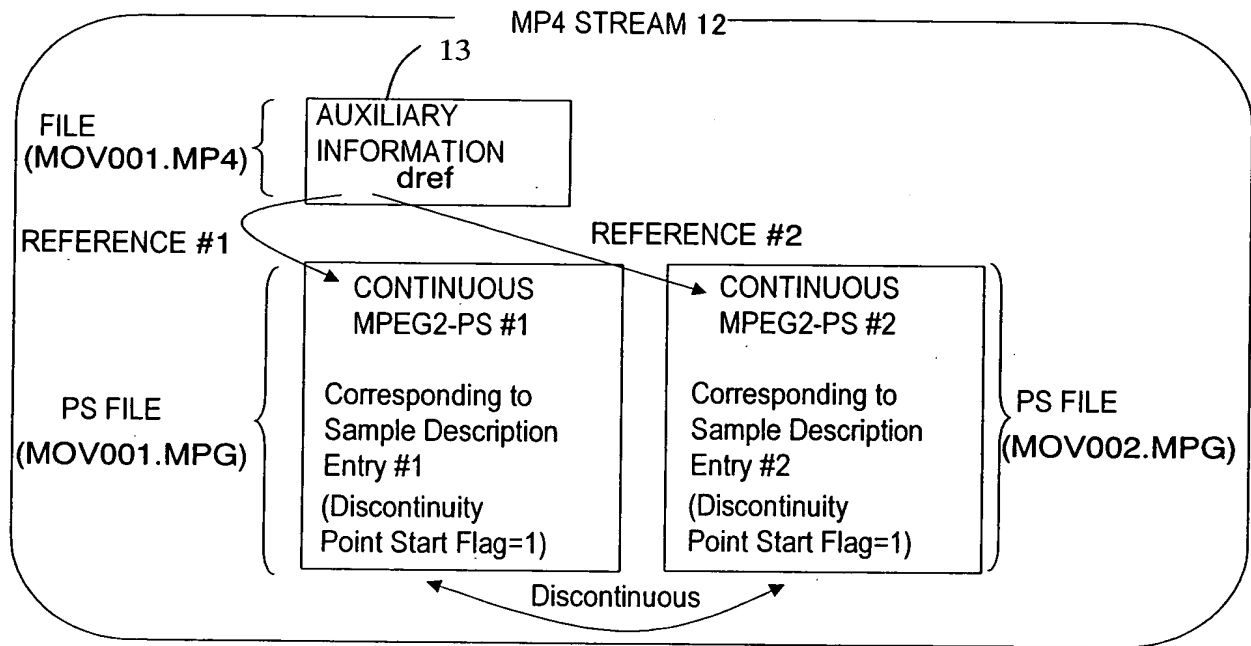


FIG. 27

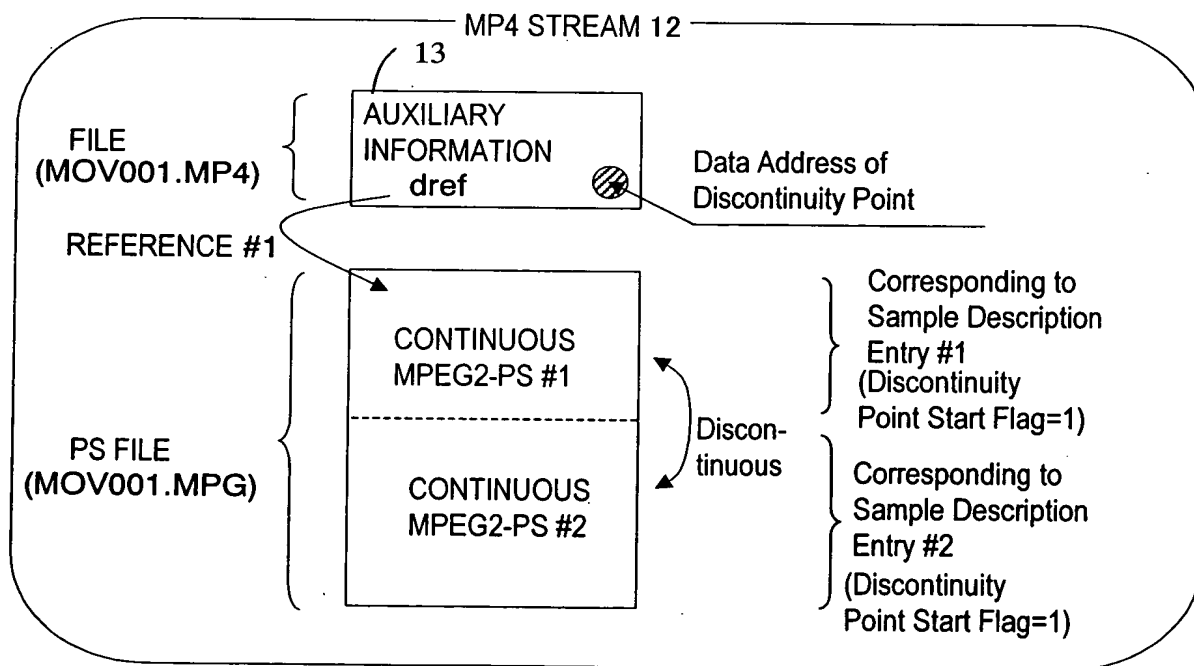


FIG. 28

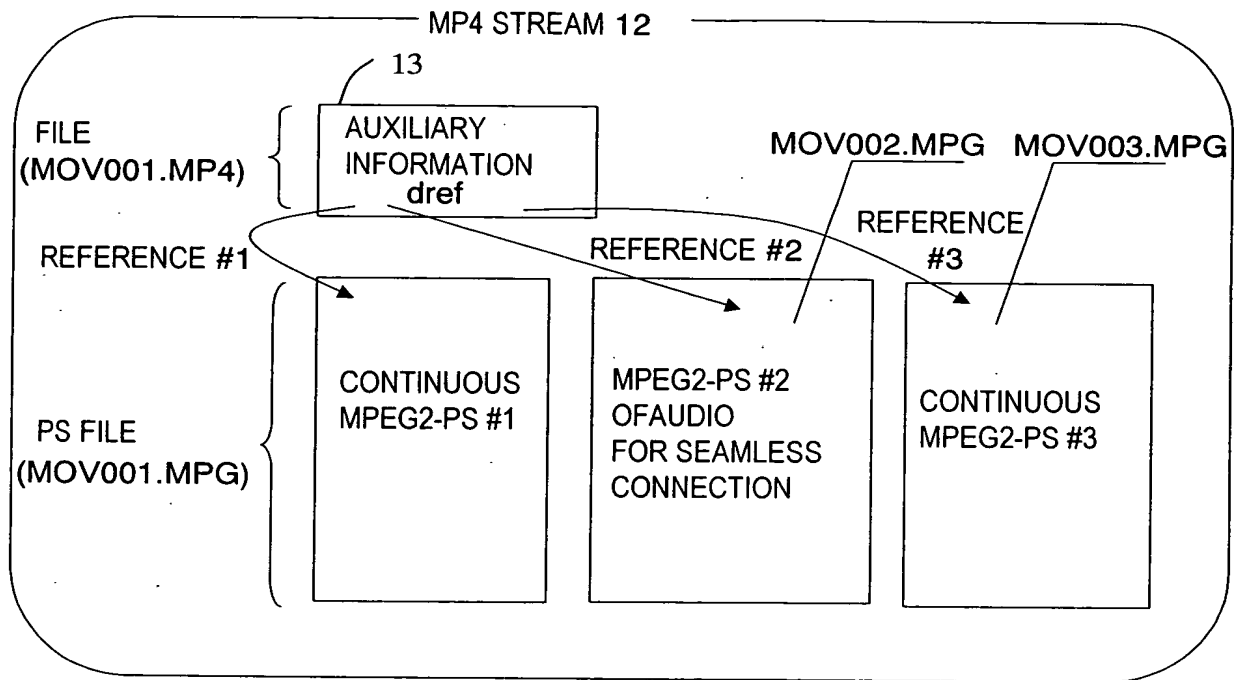


FIG. 29

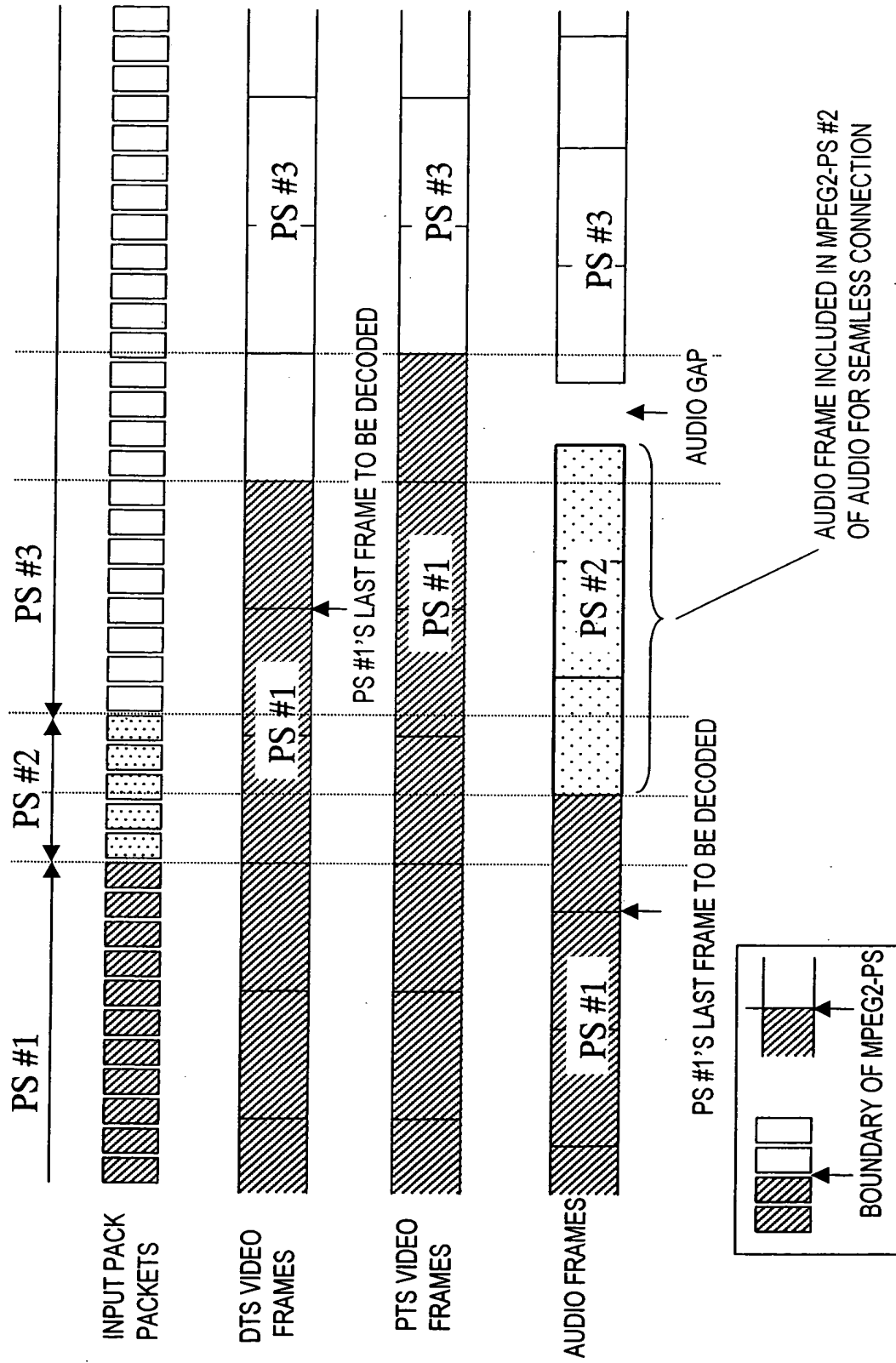


FIG. 30

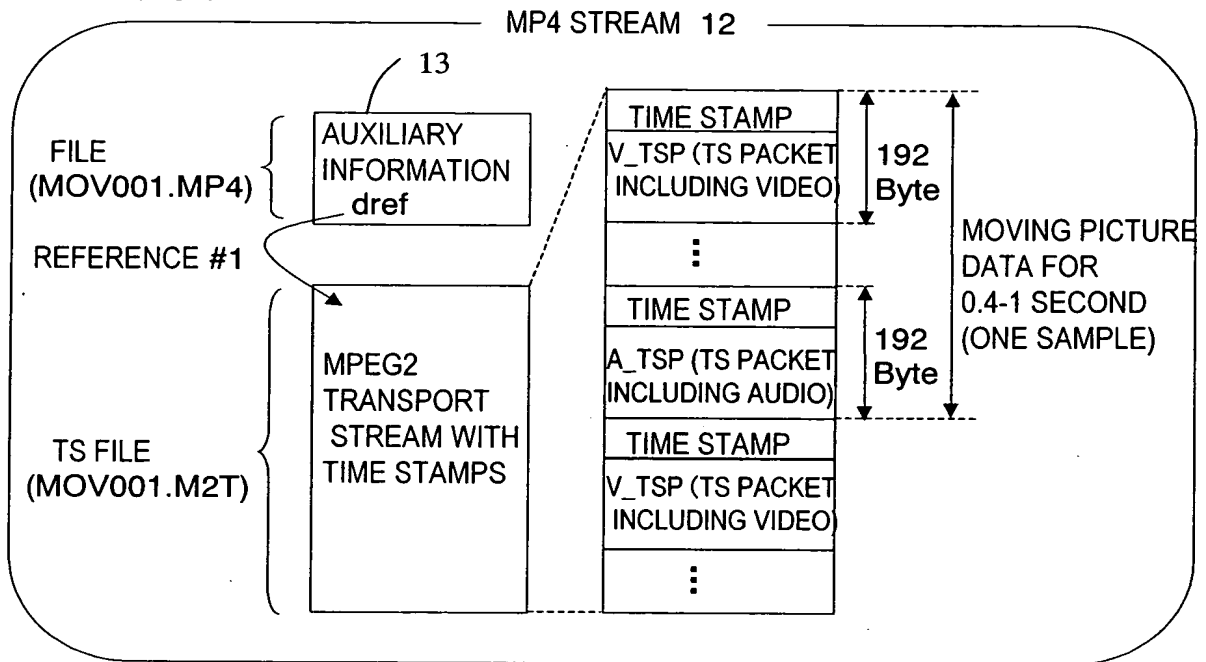


FIG. 31

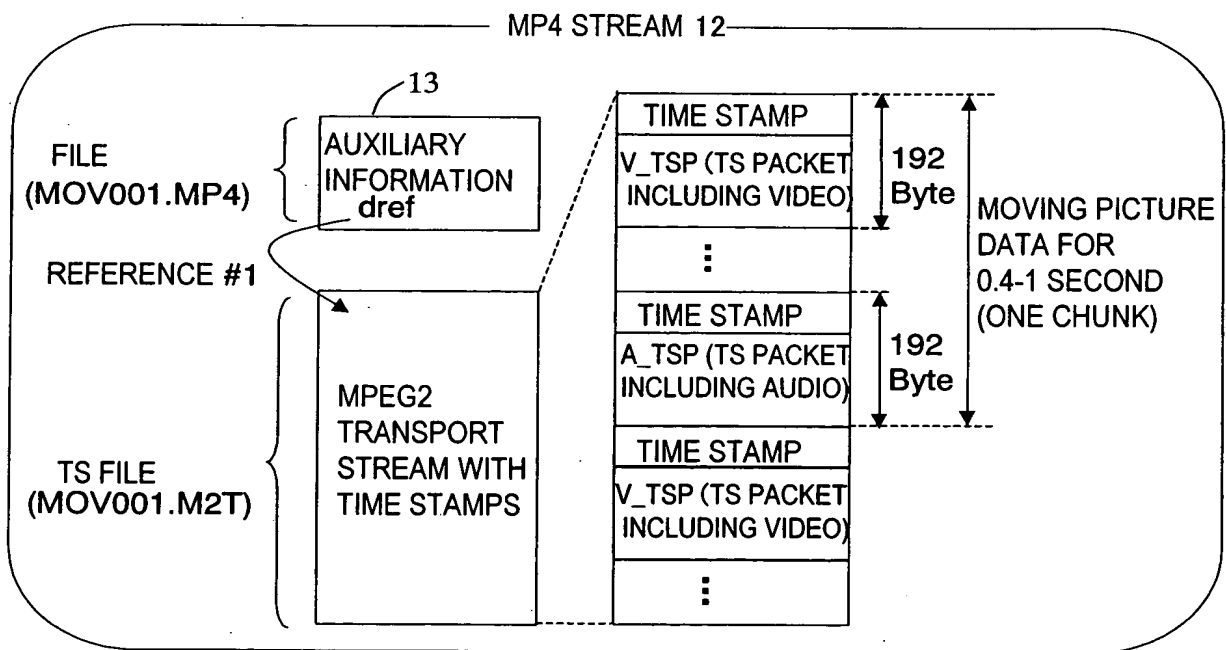


FIG. 32

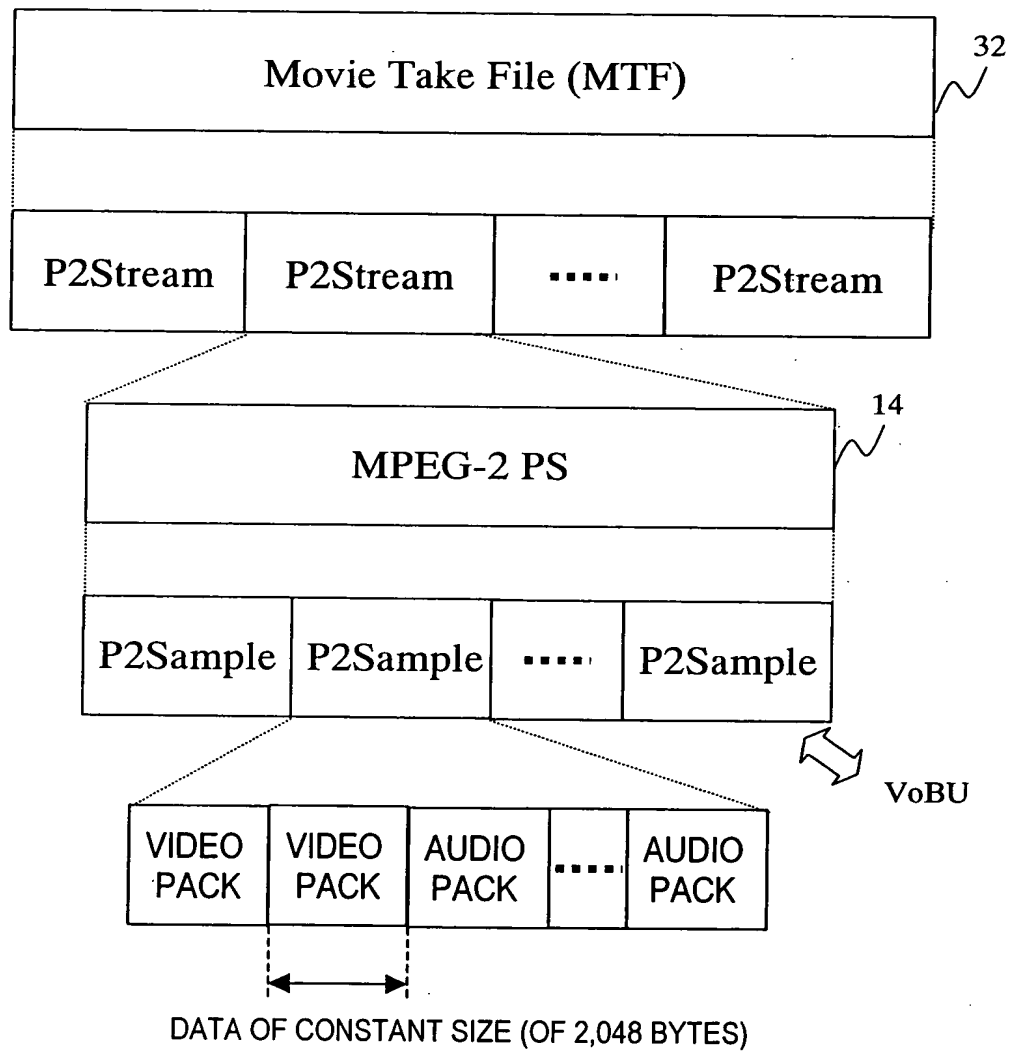


FIG. 33

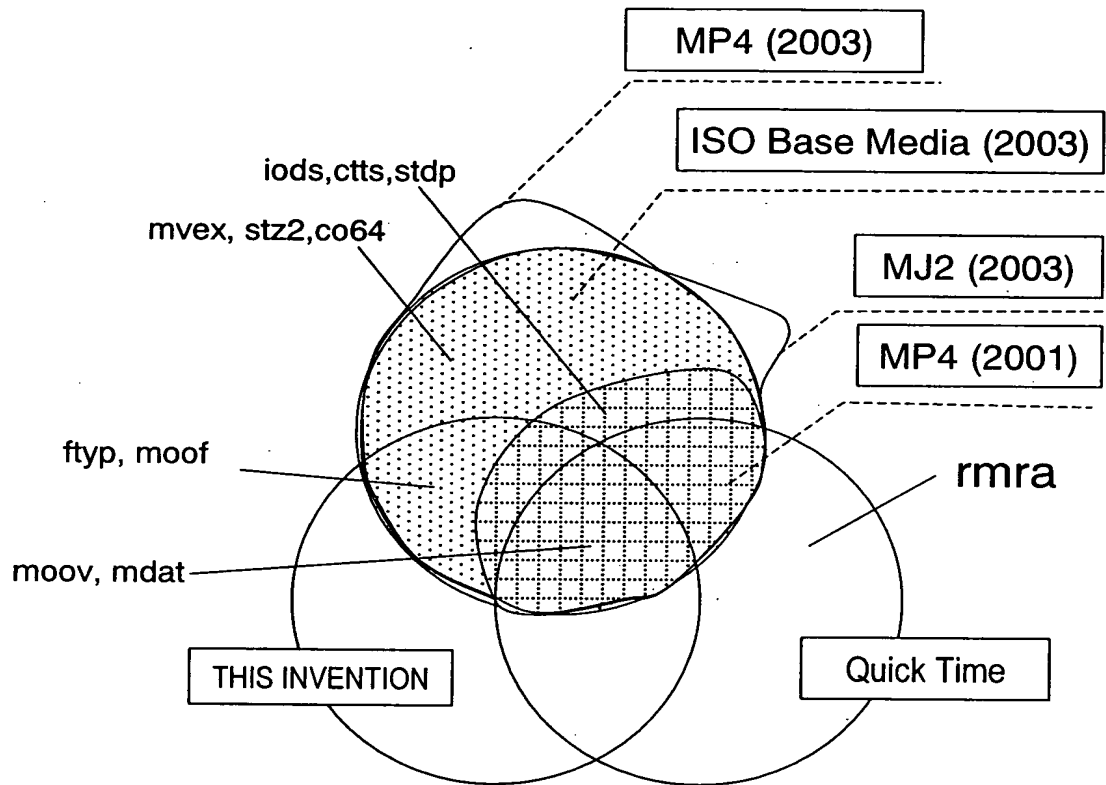
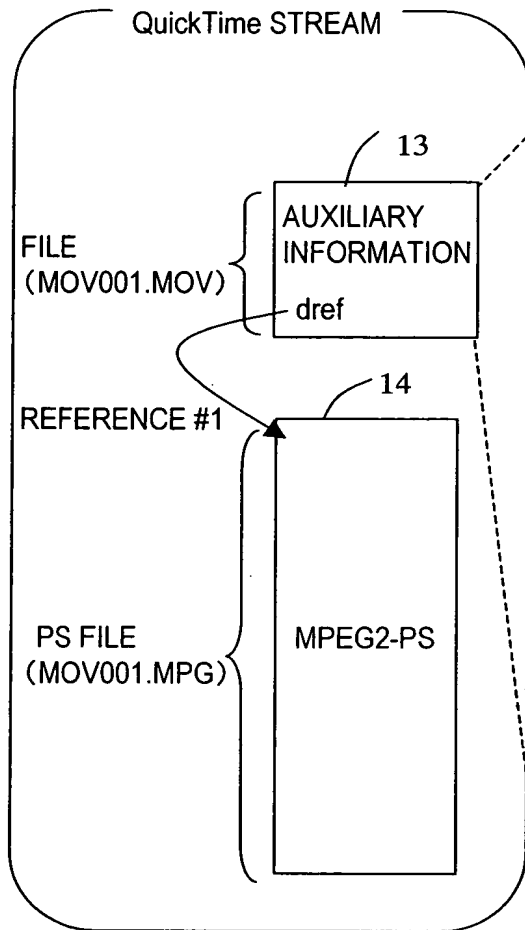


FIG. 34



| ATOM STRUCTURE | ATOM TYPE |
|---------------------------------|-----------|
| Movie Atom | moov |
| Movie Header Atom | mvhd |
| | |
| Track Atom | trak |
| Track Header Atom | tkhd |
| Edit List Atom | edts |
| Edit List Atom | elst |
| Media Atom | mdia |
| Media Header Atom | mdhd |
| Handler Reference Atom | hdlr |
| Media Information Atom | minf |
| Base Media Header Atom | gmhd |
| Data Information Atom | dinf |
| Data Reference Atom | dref |
| Sample Table Atom | stbl |
| Decoding Time to Sample Atom | stts |
| Composition Time to Sample Atom | ctts |
| Sample Description Atom | stsd |
| Sample Size Atom | stsz |
| Sample to Chunk Atom | stsc |
| Chunk Offset Atom | stco |
| User Data Atom | udta |
| Reference Picture Size Atom | rfsz |

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FIG. 35

| ATOM STRUCTURE | ATOM TYPE | |
|------------------------------|-----------|--|
| Movie Atom | moov | (Declaration of Movie Atom) |
| Movie Header Atom | mvhd | Store Writing Date and Time |
| | | |
| Track Atom | trak | (Declaration of Track Atom) |
| Track Header Atom | tkhd | Store Track ID |
| Edit List Atom | edts | (Declaration of Edit List Atom) |
| Edit List Atom | elst | Specify Playback Range and Timings |
| Media Atom | mdia | (Declaration of Media Atom) |
| Media Header Atom | mdhd | Specify Time Information Unit |
| Handler Reference Atom | hdlr | Store component_subtype="m2ps" Showing Identity as MPEG2-PS |
| Media Information Atom | minf | (Declaration of Media Information Atom) |
| Base Media Header Atom | gmhd | Show Identity as Neither Video Frame nor Audio Frame |
| Data Information Atom | dinf | (Declaration of Data Information Atom) |
| Data Reference Atom | dref | Store Moving Picture Stream File in URL Form |
| Sample Table Atom | stbl | (Declaration of Sample Table Atom) |
| Decoding Time to Sample Atom | stts | Store Playback Duration of Each VOB |
| Sample Description Atom | stsd | Show Identity as MPEG2-PS Including MPEG-2 Video and Also Show Specifications of PS Stream |
| Sample Size Atom | stsz | Store Size of Each VOB |
| Sample to Chunk Atom | stsc | Store the Number of VOBs to Make One Chunk When Overall MPEG File is Treated as One Chunk |
| Chunk Offset Atom | stco | Store Chunk Offset=0 as MPEG2-PS Starts from Beginning of MPEG File |
| User Data Atom | udta | (Declaration of User Data Atom) |
| Reference Picture Size Atom | rfsz | Store End Location of Top I-Frame of Each VOB as Offset Value from Top of VOB |

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FIG.36

